January 26, 2001

Mr. Michael Heffley
Vice President
Clinton Power Station
AmerGen Energy Company, LLC
Mail Code V-275
P. O. Box 678
Clinton, IL 61727

SUBJECT: CLINTON POWER STATION - NRC INSPECTION REPORT NO. 50-461/00-20(DRP)

Dear Mr. Heffley:

On December 31, 2000, the NRC completed a safety inspection at your Clinton Power Station. The enclosed report presents the results of that inspection. The results of this inspection were discussed on January 4, 2001, with members of your staff.

This inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of a selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Based on the results of this inspection, the inspectors identified one issue involving several human performance problems for which no risk significance or color was assigned. In addition, the inspectors identified three issues of very low safety significance (Green). Two of the three issues involved violations of NRC requirements. However, because of their low safety significance and because they have been entered into your corrective action program, the NRC is treating these issues as Non-Cited Violations, in accordance with Section VI.A.1 of the NRC's Enforcement Policy. If you deny these Non-Cited Violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, Region III, and the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Clinton facility.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available **electronically** for public inspection in the NRC Public Document Room **or** from the *Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from* the NRC Web site at http://www.nrc.gov/NRC/ADAMS/index.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Thomas J. Kozak, Chief
Reactor Projects Branch 4

Docket No.: 50-461
License No.: NPF-62

Enclosures: Inspection Report No. 50-461/00-20(DRP)

cc w/encl: M. Pacilio, Plant Manager
M. Reandeau, Director - Licensing
G. Rainey, Chief Nuclear Officer
E. Wrigley, Manager-Quality Assurance
M. Aguilar, Assistant Attorney General
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Chairman, DeWitt County Board
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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-461
License No:	NPF-62
Report No:	50-461/00-20(DRP)
Licensee:	AmerGen Energy Company, LLC
Facility:	Clinton Power Station
Location:	Route 54 West Clinton, IL 61727
Dates:	November 17 - December 31, 2000
Inspectors:	P. L. Louden, Senior Resident Inspector C. E. Brown, Resident Inspector D. E. Zemel, Illinois Department of Nuclear Safety
Approved by:	Thomas J. Kozak, Chief Reactor Projects Branch 4 Division of Reactor Projects

NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety	**Radiation Safety**	**Safeguards**
•Initiating Events	•Occupational	•Physical Protection
•Mitigating Systems	•Public	
•Barrier Integrity		
•Emergency Preparedness		

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margins.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent a performance level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margins and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margins but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: http://www.nrc.gov/NRR/OVERSIGHT/index.html.

SUMMARY OF FINDINGS

Clinton Power Station
NRC Inspection Report 50-461/00-20(DRP)

IR 05000461-00-20, on 11/17 - 12/31/2000, AmerGen Energy Company LLC, Clinton Power Station; event followup.

The inspection was conducted by resident inspectors. The inspection identified three findings which were evaluated using the significance determination process (SDP). One finding, in a cross cutting issues area was identified for which the SDP does not apply. The significance of most of the findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609 "Significance Determination Process". Findings for which the SDP does not apply are indicated by "no color" or by the severity level of the applicable violation.

Cornerstone: Initiating Events

- GREEN — During plant restart following refueling outage 7, operators did not adequately evaluate an alarming moisture separator drain tank level annunciator. As a result, high water level in the moisture separator drain tank caused a turbine trip with the reactor at approximately 25% power.

  The inspectors reviewed this issue using the significance determination process for a transient. Since only the initiating event cornerstone is affected and associated assumptions have no other impact than slightly increasing the likelihood of an uncomplicated reactor trip, the finding is considered to be of very low safety significance (Green). (Section 4OA3)

- GREEN — During operator response to a reactor scram on December 18, 2000, operators did not adequately control reactor vessel inventory prior to the motor driven reactor feedwater pump tripping on high reactor vessel water level.

  The inspectors reviewed this issue using the significance determination process for a transient with a loss of feedwater and determined this was of very low safety significance because all other reactor vessel level control systems were operable and functioned as designed. (Section 4OA3)

- GREEN — Operators failed to adequately control reactor vessel water level and pressure, while attempting to open the main steam isolation valves following the automatic reactor scram on December 18, 2000. This resulted in an automatic scram signal due to low reactor vessel water level.

The inspectors reviewed this issue using the significance determination process for a transient with a loss of feedwater and determined this was of very low safety significance because the event occurred while the reactor was shut down and all control rods were already fully inserted. (Section 4OA3)

Cornerstone: Cross-Cutting Issues- Human Performance

- NO COLOR Recent human performance issues have occurred which are associated with operator performance and knowledge based deficiencies that have affected plant operations and responses to transient conditions. Examples of these issue include:

  - Procedural compliance, control panel indication awareness, and operator system knowledge deficiencies associated with the conditions that led to the unplanned main turbine trip on November 12, 2000.

  - An operator error occurred during the December 18, 2000, automatic shutdown which caused a high reactor vessel water level trip of the motor driven reactor feedwater pump. This error caused the motor driven reactor feedwater pump to be unavailable as a feedwater source for a short period.

  - Procedural compliance deficiencies and poor pre-job and contingency planning associated with the events that led to the unplanned low reactor water level automatic scram on December 18, 2000.

  While the risk of the individual events was very low, the failure of operators to adequately control level parameters indicated a declining trend in this area. These issues could not be easily evaluated by present risk analysis methods because failures to follow procedures and maintaining management expectations were not modeled in the Clinton Individual Plant Evaluation. Therefore, the finding is characterized as having no color.

Report Details

Summary of Plant Status

At the beginning of the inspection period, the licensee was restarting the plant after completing the planned cycle 7 refueling outage. The plant was operated at essentially 100 percent power until December 18, when an automatic shut down occurred due to the closing of the main steam isolation valves (MSIVs). The licensee subsequently restarted the plant on December 23 and operated the plant at approximately 100 percent power for the remainder of the inspection period.

1. Reactor Safety

1R01 Adverse Weather (71111.01)

a. Inspection Scope

The inspectors verified design features, reviewed the licensee's procedure implementation, and conducted independent walkdowns of equipment used to protect mitigating systems from adverse winter weather conditions. The following procedure was reviewed as part of this inspection effort:

- Clinton Power Station (CPS) 1860.01C001, "Cold Weather Preparations Checklist," Revision 1

b. Findings

No findings of significance were identified.

1R04 Equipment Alignments (71111.04)

a. Inspection Scope

The inspectors reviewed piping and instrument drawings (P&IDs) and conducted partial walkdowns to verify equipment alignment and identify any discrepancies that impact the function of the following high risk importance safety systems:

- Residual Heat Removal (RHR) System "B"

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

a. Inspection Scope

The inspectors reviewed the licensee's operator training program to evaluate operator performance in mitigating the consequences of a simulated event, particularly in the areas of human performance. The inspectors evaluated the following attributes of the activities:

- communication clarity and formality
- timeliness and appropriateness of crew actions
- prioritization, interpretation, and verification of alarms
- correct use and implementation of procedures
- oversight and direction provided by the shift supervisor and shift manager

The scenario observed in the control room simulator involved the degradation of the recirculation (RR) system seals leading to entries into the emergency operating procedures (EOPs).

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12)

a. Inspection Scope

The inspectors reviewed the effectiveness of the licensee's efforts in implementing the maintenance rule (MR) requirements, including a review of scoping, goal-setting, performance monitoring, short-term and long-term corrective actions, and current equipment performance problems. These systems were selected based on their designation as risk significant under the MR, or their being in the increased monitoring (MR category a (1)) group. The systems were:

- Automatic depressurization system (ADS) backup air supply system

- General MR program update to incorporate recent 10 CFR 50.65(a)4 implementation.

- Circuit breaker refurbishment and repair status relative to NRC commitments

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessment and Emergent Work Evaluation (71111.13)

a. Inspection Scope

The inspectors observed the licensee's risk assessment processes and considerations used to plan and schedule maintenance activities on safety-related structures, systems, and components particularly to ensure that maintenance risk and emergent work contingencies had been identified and resolved. The inspectors assessed the effectiveness of risk management activities for the following work activities or work weeks:

- Risk associated with extended ADS backup air supply work, and subsequent post maintenance testing failures
- Risk associated with emergency reserve auxiliary transformer (ERAT) static Volts-Ampere-reactive (VAR) compensator (ERAT/SVC) limiting condition for operation (LCO) during single protection system operations

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-routine Plant Evolutions (71111.14)

a. Inspection Scope

The inspectors reviewed personnel performance during planned and unplanned plant evolutions and selected licensee event reports focusing on those involving personnel response to non-routine conditions. The review was performed to ascertain that operators' responses were in accordance with the required procedures. In particular, the inspectors reviewed personnel performance during the following plant events:

- The November 12 main turbine trip during restart from the cycle 7 refueling outage
- The December 18 automatic reactor shut down following MSIV closure due to a failed digital signal conditioner (DSC) in the main steam tunnel leak detection system
- A subsequent unplanned automatic shut down signal generated on December 18 while the plant was in hot shut down (Mode 3) due to low reactor water level

Details of the above events are found in Section 4OA3 of this report.

b. Findings

Findings associated with these events are discussed in Section 4OA3 of this report.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following condition reports (CRs) and operability determinations (ODs) which affected mitigating systems and barrier integrity to ensure that operability was properly justified and the component or system remained available such that no unrecognized risk increase had occurred:

- All open operability determinations/operability evaluations (ODs/OEs) following the cycle 7 refueling outage to assess the cumulative effect these conditions had on plant system operability

- Operability determination associated with CR 2-00-11-147 regarding a degraded condition with the Division II EDG due to increased generator bearing vibrations.

b. Findings

No findings of significance were identified.

1R16 Operator Work-Arounds (71111.16)

a. Inspection Scope

The inspectors reviewed operator work-arounds and operator challenges remaining in place following the cycle 7 refueling outage to assess the cumulative impact that the work-arounds and challenges may have on the operators' ability to effectively control the plant during abnormal and emergency operations.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

a. Inspection Scope

The inspectors reviewed the following plant modifications against the design bases, licensing bases, and performance capabilities to ensure that risk significant structures, systems, and components (SSCs) had not been degraded and that modifications performed during increased risk-significant configurations did not place the plant in an unsafe condition.

- Action Request F14605, "Replace and Relocate Filter Upstream of Air Regulating Valve"

- RR Pump "A" and "B" Seal Replacement (Mod-RR084)

- RHR/Low Pressure Core Spray (LPCS) Keepfill System Upgrade (Mod M-034)

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed and observed portions of the following post-maintenance testing (PMT) activities involving risk significant equipment to ensure that the activities were adequate to verify system operability and functional capability:

- Post Maintenance Testing associated with work on the ADS backup air supply pressure regulating valves
- Planned activity involving the removal of the ERAT/SVC freeze during EDG operation. Clinton Power Station procedure 2800.25, "Permanent Removal of Automatic RAT/ERAT SVC Freeze during DG Operations," Rev 0
- Post maintenance testing on the Division I standby gas treatment system

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed portions of the following surveillance tests to verify that risk significant systems and equipment were capable of performing their intended safety functions and assessed their operational readiness:

- Emergency reserve auxiliary transformer/SVC protective relay testing, CPS 9384.01, "ERAT SVC Protective Relay Functional Test," Revision 1
- CPS 2822.00, "RAT/(ERAT) SVC Thyristor Monitoring and SVC Cooling EPROM Replacement Test," Revision 2

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed temporary modifications installed in the plant to ensure that the temporary modifications have not affected the safety functions of important safety systems.

- Planned temporary modification to remove the freeze signal from the EDG/SVC protection circuitry

b. Findings

No findings of significance were identified.

2. Emergency Preparedness

2EP1 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed the licensee's performance of an emergency response organization (ERO) drill to ascertain the effectiveness of the licensee's ability to assemble personnel to respond to plant emergencies. The inspectors observed the conduct of the December 14, 2000, drill which included a full activation of the technical support center (TSC) and the operational support center (OSC).

b. Findings

No findings of significance were identified.

4. Other Activities

4OA3 Event Follow-up (71153)

.1 Turbine Trip During Restart From the Cycle 7 Refueling Outage

a. Inspection Scope

The inspectors reviewed the situations and circumstances surrounding the unplanned main turbine trip which occurred on November 12, 2000.

b. Findings

On November 12, 2000, the main generator was placed on the electrical distribution grid at 1:50 a.m. following the completion of the cycle 7 refueling outage. The reactor was at 24 percent power. The operators proceeded to place the moisture separator re-heaters (MSRs) and feedwater heaters in service. While operators were aligning MSR "1A", the

turbine tripped due to a high water level condition in the “1A” moisture separator drain tank. The reactor power level was less than the turbine trip/reactor scram set-point of 40 percent; therefore, the turbine trip did not affect the reactor. The steam load following the turbine trip was exhausted to the main condenser via the condenser bypass valves.

A prompt investigation into the cause of the turbine trip revealed that the level controllers for the “1A” MSR drain tank normal and emergency drain valves were in the “manual” and “closed” positions at the local control panel. The controllers had not been properly aligned because the procedure to complete the startup alignment had been canceled. In addition, operator performance during the evolution exhibited deficiencies. The MSR drain tank “high/low” level alarm was received in the main control room (MCR) early in the evolution as the tank level oscillated around the low level setpoint. However, subsequent alarms were treated as “expected” without proper verification of the tank level condition. Later in the evolution the same alarm was received for a high level condition in the tank. The operators failed to properly check the tank level indications when the alarm was received. Furthermore, the operators did not review and follow the instructions provided in the alarm response book for the annunciator which would have had them dispatch an area operator to the MSR drain tank controller panel to verify proper controller settings. The inspectors reviewed this issue using the significance determination process for a transient. This finding could become a more significant concern and could cause an increase in the frequency of an initiating event had this event occurred at a higher reactor power level. However, since only the initiating event cornerstone is affected and associated assumptions have no other impact than slightly increasing the likelihood of an uncomplicated reactor trip, the finding is considered to be of very low safety significance (Green).

Technical Specification 5.4.1.a requires that written procedures be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide (RG) 1.33, Revision 2, Appendix A, dated February 1978. Appendix A to RG 1.33 recommends procedures for abnormal, offnormal, and alarm conditions. Clinton Power Station Procedure 5019.04, “High or Low Moisture Separator Drain Tank 1A”, is a procedure used to evaluate an alarm condition. Step 3 of the operator actions for CPS 5019.04 was not completed when alarms were received on November 12, 2000. Reactor operators failed to have an area operator locally check the MSR drain tank controller settings. However, because of the very low safety significance of this issue and because the licensee has included this event in their corrective action program (CR 2-00-11-091) this procedure violation is being treated as a Non-Cited Violation **(NCV 50-461/00-20-01)**.

During the inspectors’ review of this finding, operator performance and knowledge based deficiencies became apparent. The human performance aspects of these deficiencies are further discussed in Section 4OA4 of this report.

.2 December 18 Automatic Reactor Shutdown

a. Inspection Scope

The inspectors reviewed the situations and circumstances surrounding the automatic reactor shutdown which occurred on December 18, 2000.

b. Findings

Event description

On December 18, 2000, at 1:29 p.m. the MSIVs went closed on an isolation signal which led to the automatic shutdown of the reactor. The operators brought the reactor to a stable condition and initiated a review to determine the cause of the automatic shutdown.

Prior to the shutdown, maintenance personnel were conducting a planned surveillance test on the Division II main steam line tunnel temperature containment isolation logic channel. The automatic shutdown occurred when the maintenance personnel pulsed the Division II circuit with a test signal. Investigation of the logic circuit cards for the main steam line isolation channels revealed that a Division I digital signal conditioner (DSC) had failed in the tripped condition. No indication was present regarding the failed status of the Division I DSC. Therefore, when the Division II signal was pulsed, the 2 out of 4 logic for the channel was satisfied and the MSIVs went closed.

Shortly after the MSIV closure and automatic shutdown, operators broke condenser vacuum and the condenser was not available as a normal heat sink for about 5 hours. All control rods inserted following the automatic shutdown signal and reactor pressure and level control were maintained by safety relief valves, the reactor core isolation cooling system, and the motor driven reactor feedwater pump. All equipment functioned as designed. However, an operator error caused the motor driven reactor feedpump flow control valve to lock in the full open position. This resulted in a high reactor vessel water level trip of the motor driven reactor feedpump. The motor driven reactor feedpump was unavailable as a feedwater source for a short period following this operator error.

This event was characterized as a shutdown with complications due to the loss of the condenser as a normal heat removal source. An NRC senior risk analyst evaluated the event using the SDP and the NRC GEM computer program. All emergency core cooling systems and EDGs were operable and functioned properly during the course of the shut down. The results of the risk analysis concluded that the conditional core damage probability was less than 1E-06/year which would categorize this event as having very low safety significance.

The operator error in manipulating the controls for the motor driven reactor feedpump which resulted in the motor driven feedpump being unavailable as a feedwater source was evaluated using the significance determination process for a transient with a loss of feedwater. The inspectors determined this event was of very low safety significance because all other reactor vessel level control systems were operable and functioned as designed. (Green)

.3 Low Reactor Water Level Automatic Shut Down Signal Generated During Main Condenser Recovery

a. Inspection Scope

The inspectors reviewed the situations and circumstances surrounding the unplanned low reactor water level automatic shut down signal generated during activities conducted to return the main condenser as the normal heat removal source.

b. Findings

On December 18, 2000, following the automatic reactor shut down that had occurred earlier that day, operators were proceeding to recover the main condenser as the normal heat removal source. Reactor pressure was being controlled by the steam bypass system via the main steam line drains and the reactor core isolation cooling system (RCIC) was operating in the tank to tank alignment to assist with heat removal. Operators encountered pressurization problems in establishing pressure relief via the condenser bypass valves and decided to pursue opening the MSIVs which had closed during the initial automatic shut down.

In preparation for opening the MSIVs, operators reset the main turbine and closed the main turbine drains. A reactor operator then proceeded to realign the main steam system in accordance with the CPS 3101.01, "Main Steam System," operating procedure. The inboard MSIVs were opened and as the reactor operator continued through the procedure steps he recognized that the portion of the procedure being used did not contain instruction to open the outboard MSIVs. Upon realizing this, the operating crew decided to conduct a one-time procedure revision that would allow the outboard MSIVs to be opened at that point of the procedure. Following the procedure change, the outboard MSIVs were opened; however reactor pressure had risen above the condensate booster pump supply pressure and reactor water level decreased below the low level setpoint (Level 3) of 8.9 inches (narrow range). This led to the automatic scram signal being received on low reactor water level. Reactor water level rose above the low level setpoint within a minute of going below the setpoint.

A followup review of the main steam procedure identified that the reactor operator incorrectly determined that procedure sub-sections could be completed without having performed the preceding sub-sections. Had the reactor operator performed the procedure sub-sections in the order written, the outboard MSIVs would have already been opened and the event would have been avoided.

The inspectors reviewed the low reactor vessel water level scram using the significance determination process for a transient with a loss of feedwater and determined this was

of very low safety significance because the event occurred while the reactor was shut down and all control rods were already fully inserted.

Technical Specification 5.4.1.a requires that written procedures be established, implemented and maintained covering the applicable procedures recommended in Regulatory Guide (RG) 1.33, Revision 2, Appendix A, dated February 1978. Appendix A to RG 1.33 recommends procedures for startup, operation, and shut down of the main steam system. Clinton Power Station Procedure 3101.01, "Main Steam", Revision 14a, is a procedure used to startup, operate and shut down the main steam system. The sub-sections of this procedure were not performed as written which led to an unplanned automatic reactor shut down actuation due to low reactor vessel water level. This was considered a violation of T.S. 5.4.1.a requirements; however, because of the very low safety significance of this issue and because the licensee has included this event in their corrective action program (CR 2-00-12-109) this procedure violation is being treated as a Non-Cited Violation **(NCV 50-461/00-20-02)**.

Contributing factors to this finding included operator performance and knowledge based deficiencies as well as poor pre-job and contingency planning by the entire operations crew. The human performance deficiencies involved with this finding are further discussed in Section 4OA4 of this report.

4OA4 Cross - Cutting Issues: Human Performance

a. Inspection Scope

The inspectors reviewed the recent human performance issues associated with operator performance and knowledge based deficiencies which affected plant operations or responses to transient conditions. The findings associated with these issues are discussed in Section 4OA3. Examples of these issue include:

- Procedural compliance, control panel indication awareness, and operator system knowledge deficiencies associated with the conditions that led to the unplanned main turbine trip on November 12, 2000.

- An operator error occurred during the December 18, 2000, automatic shutdown which caused a high reactor vessel water level trip of the motor driven reactor feedwater pump. This error caused the motor driven reactor feedwater pump to be unavailable as a feedwater source for a short period.

- Procedural compliance deficiencies and poor pre-job and contingency planning associated with the events that led to the unplanned low reactor water level automatic shut down actuation on December 18, 2000.

While the risk of the individual events was very low, the failure of operators to adequately control level parameters indicated a declining trend in this area relative to past performance (within the last 12 months). These issues could not be easily evaluated by present risk analysis methods because failures to follow procedures and maintaining management expectations were not modeled in the Clinton Individual Plant

Evaluation. Licensee management acknowledged that a declining trend existed in the operator performance area and CR 2-00-12-109 was written to investigate the human performance deficiencies surrounding recent events. The licensee had acknowledged a site-wide human performance concern and was evaluating the matter through CR 2-00-09-055.

4OA6 Meetings, including Exit

The inspectors presented the inspection results to Mr. P. Hinnenkamp, and other members of licensee management at the conclusion of the inspection on January 4, 2001. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

Management

S. Clary, Director - Plant Engineering
M. Coyle, Site Vice President
W. Iliff, Director - Experience Assessment and Corrective Actions
P. Hinnenkamp, Plant Manager - Clinton Power Station
W. Maguire, Director - Operations
J. Heckenberger, Manager - Work Management
C. Matthews, Radiation Protection Manager
M. Reandeau, Director - Licensing
R. Schenck, Manager - Maintenance
D. Smith, Director - Security and Emergency Planning
P. Walsh, Manager - Nuclear Station Engineering Department
E. Wrigley, Manager - Quality Assurance

Senior Reactor Operators and Operations Staff

E. Beck, Control Room Supervisor
J. Bunning, Control Room Supervisor
G. Lukach, Control Room Supervisor
R. Powers, Shift Technical Advisor
K. Scott, Shift Manager
T. Staber, Control Room Supervisor
L. Westbrook, Control Room Supervisor,
D. Zelinski, Operations Work Coordinator

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-461/00-20-01	NCV	Turbine trip during restart from cycle 7 refueling outage. Reactor operators failed to have an area operator locally check the MSR drain tank controller settings.
50-461/00-20-02	NCV	Low reactor vessel water level automatic shut down during main condenser recovery. Failure to follow Clinton Power Station Procedure 3101.01, “Main Steam”, Revision 14a.

Closed

50-461/00-20-01	NCV	Turbine trip during restart from refueling outage. Reactor operators failed to have an area operator locally check the MSR drain tank controller settings.
50-461/00-20-02	NCV	Low reactor vessel water level automatic shut down during main condenser recovery. Failure to follow Clinton Power Station Procedure 3101.01, “Main Steam”, Revision 14a.

Discussed

None

LIST OF ACRONYMS

ADS	Automatic Depressurization System
AR	Action Request
CR	Condition Report
DSC	Digital Signal Conditioner
EDG	Emergency Diesel Generator
EOPs	Emergency Operation Procedures
ERAT	Emergency Reserve Auxilary Transformer
IA	Instrument Air
LCO	Limiting Condition for Operation
LPCS	Low Pressure Core Spray
MR	Maintenance Rule
MSIV	Main Steam Isolation Valves
MSR	Moisture Separator Reheaters
ODs	Operability Determinations
P&IDs	Piping and Instrument Drawings
PMT	Post Maintenance Testing
RAT	Reserve Auxiliary Transformer
RCIC	Reactor Core Isolation Cooling
RG	Regulatory Guide
RHR	Residual Heat Removal
RR	Reactor Recirculation System
SSCs	Significant Structures, Systems, and Components
VAR	Volts-Ampere-Reactive

List of Baseline Inspections Performed

The following inspectable area procedures were used to perform inspections during the report period. Documented findings are contained in the body of the report.

Inspection Procedure Number	Title	Report Section
71111.01	Adverse Weather	1R01
71111.04	Equipment Alignments	1R04
71111.11	Licensed Operator Requalification	1R11
71111.12	Maintenance Rule Implementation	1R12
71111.13	Maintenance Risk Assessment and Emergent Work Evaluation	1R13
71111.14	Personnel Performance During Non-routine Plant Evolutions	1R14
71111.15	Operability Evaluations	1R15
71111.16	Operator Work-Arounds	1R16
71111.17	Permanent Plant Modifications	1R17
71111.19	Post Maintenance Testing	1R19
71111.22	Surveillance Testing	1R22
71111.23	Temporary Plant Modifications	1R23
71114.06	Drill Evaluation	EP1
71153	Event Follow-up	OA3